

What is claimed is:

1. A method of etching a nitride-based bottom etch stop layer in a copper damascene structure comprising:  
etching the bottom etch stop layer using a high density, high radical concentration plasma containing fluorine and oxygen.
2. A method according to claim 1, wherein radical-to-ion ratio in the high density, high radical concentration plasma is greater than about 10:1.
3. A method according to claim 1, wherein the nitride-based bottom etch stop layer is silicon nitride.
4. A method according to claim 1, wherein the nitride-based bottom etch stop layer is oxynitride.
5. A method according to claim 1, wherein the fluorine is provided by at least one of CF<sub>4</sub>, CHF<sub>3</sub>, SF<sub>6</sub>, NF<sub>3</sub>, C<sub>2</sub>F<sub>6</sub>, C<sub>4</sub>F<sub>8</sub>, CH<sub>2</sub>F<sub>2</sub>, CH<sub>3</sub>F, and C<sub>4</sub>F<sub>6</sub>.
6. A method according to claim 1, wherein the high density plasma further comprises N<sub>2</sub> and any one of inert gases.
7. A method according to claim 1, wherein the copper damascene structure is a via step.
8. A method according to claim 1, wherein the copper damascene structure is a single damascene structure.
9. A method according to claim 1, wherein the copper damascene structure is a non-intermediate etch stop layer dual damascene.